



NO GENERAL MEETING  
DECEMBER 10TH

*Daenbor*

**November 1997**

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**Pikes Peak Radio Amateur Association, Inc.**  
**P.O. Box 16521**  
**Colorado Springs, Colorado 80935**



**FIRST CLASS MAIL**



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# O-Beat



## Pikes Peak Radio Amateur Association Officers and Directors

President: Greg Tarcza WA2OOD 897-7864  
 Vice-Pres: Les Borst KC0NC 634-3995  
 Secretary: Al Vrooman N0CMW 520-6650  
 Treasurer: Rob Roller N7LV 282-8254  
 O-Beat Ed: Bill Pierce KD0JU 550-0406  
 \*Board Mbr: Bill Petty N0NJX 532-1439  
 \*Board Mbr: Ron Deutsch NK0P 593-8352  
 \*Board Mbr: Aaron Pelouze KD6FLM 282-9715  
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\*This Officer/Director is completing the second year of the two-year term to which they were elected.

The O-Beat is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc., PO Box 16521, Colorado Springs, Colorado 80935. For membership and subscription information see the last page of this publication. Monthly advertising rates: Full page, \$48; Half page, \$24; Quarter page, \$12; Business card, \$6. These rates are billed quarterly. Send your ad requests and payments to: PPRAA, PO Box 16521, Colorado Springs, Colorado 80935.

Check out the PPRAA page on the World Wide Web! Go to: <http://www.qsl.net/ppraa>

Deadline for submission of articles or advertisements is the 20th of each month. Submissions are accepted in any form. Articles should be sent directly to the O-Beat Editor (email to kd0ju-1@juno.com is preferred.) Permission is granted to reprint articles provided credit is given to both the author and this publication.

### License Exams

License examinations sponsored by the Pikes Peak Radio Amateur Association are held on the 2nd Saturday of February, April, June, August, October, and December.

Testing takes place at 9 A.M. at:

Denver Technical College  
 225 South Union  
 Colorado Springs

Everyone is seated on a walk-in basis. Those wishing to take an exam should bring the following items:

1. \$6.25 (preferably a check/money order made out to ARRL/VEC) for any exam other than element 1A or 2.
2. Picture identification.

3. A copy of your current amateur radio license, and/or a copy of any examination credit you have, as well as the signed original. We keep the copies.

4. A pen, pencils, and a calculator if you need one.

If you have any questions, call Erik Mugele, KG0XE at 596-5345. Please do not call Denver Technical College.

### Committee Chairpersons/Contacts

|                       |                  |        |          |
|-----------------------|------------------|--------|----------|
| O-Beat Editor         | Bill Pierce      | KD0JU  | 550-0406 |
| Activity              | Renny Boyes      | KA0ROY | 577-6029 |
| Auditing              | Any Volunteer's? |        |          |
| Asset                 | Mike Stansberry  | K0TER  | 636-1290 |
| Historian             | Jody Borst       | KA0ROZ | 634-3995 |
| Interference          | Bill Petty       | N0NJX  | 532-1439 |
| Membership            | Les Borst        | KC0NC  | 634-3995 |
| Programs              | Aaron Pelouze    | KD6FLM | 282-9715 |
| Publicity             | Ron Deutsch      | NK0P   | 593-8352 |
| Public Service        | Mike Stansberry  | K0TER  | 636-1290 |
| Swapfest '98          | Carlos Caro      | KB0REI | 632-1569 |
| Technical Instruction | Linda Hedges     | KB0RKW | 520-9238 |
| VE Testing            | Erik Mugele      | KG0XE  | 596-5345 |

### Other Organizational Liaisons

|               |                 |       |          |
|---------------|-----------------|-------|----------|
| ARES Liaison  | Mike Stansberry | K0TER | 636-1290 |
| CCARC Liaison | Ron Deutsch     | NK0P  | 593-8352 |
| RACES Liaison | Bryan Curl      | N0LUF | 575-8400 |

### Reminder — General Membership Meeting

There will be NO MEETING of the General Membership of the Pikes Peak Radio Amateur Association in December. See Announcement of Christmas Party!

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## Old Fashion Country Christmas Party ANNOUNCEMENT

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Where:

Colorado Opry & Music Hall  
2475 East Pikes Peak

When: Saturday December 13,  
1997 at 6:00 P.P.

Given by: The PPRAA

Come enjoy an evening of fun  
entertainment and good food.  
There will be a choice of main  
meals. Your drink and show  
tickets are included.

Give Renay Boyes (641-1837) or  
Jody Borst (634-3995) a call to  
reserve your spot today. Tickets  
are \$10 each; you will receive \$7  
back the day of the event.  
(Guests are full price - \$16).

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## ANNOUNCEMENT January Meeting

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January PPRAA meeting place  
(Mt Calvary Church) will be  
opened at 1830 (6:30p.m.). All  
are welcome to come and  
observe and/or participate. The  
program will be Home Brew. If  
you have built anything in the last  
year, bring it to the meeting for a  
"show and tell".

New and old members are  
welcome to operate an HF  
station thanks to Dave, NØUVR.  
Dave will be there to setup  
around 6:30pm. Station should  
be ready before the meeting,  
during the break.

## ANNOUNCEMENT Next Board Meeting

Next board meeting will be at  
QTH of Les KCØNC.

Submitted by Al NØCMW  
Secretary

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## ANNOUNCEMENT Novice/Technician Classes

Names are being accepted for a  
January through March no-code  
Novice and Technician amateur  
radio class. The class will cover  
FCC Rules and Regulations and  
the electronic theory needed to  
pass the Novice and Technician  
licensing examinations. The class  
will meet two nights per week for  
10 weeks. The class will be  
presented in a Novice section and  
a Technician section. Students  
will be tested on their knowledge  
of the subject material at the end  
of each section.

The cost of the class is free to all  
participants; however, each  
student will be required to  
purchase a Now You're Talking  
text book and pay for the  
licensing examination. The text  
book is \$15.00 and the technician  
examination is approximately  
\$6.50.

A minimum of 10 students is  
required to present the class.  
Those persons interested in  
taking the class need to contact  
Frank or Barb McNally at 596-  
8733 or via email at  
warm.fuzzy@bigfoot.com. A

class schedule and location will  
be announced over the Southern  
Colorado Traffic Net held nightly  
on 146.970 or on the 146.625  
and 448.725 repeater if the  
minimum class attendance is met.

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## OM/YL LUNCH BUNCH

Lunch Bunch get together for  
December will be our annual  
Christmas Party.

The date is, December 18 at The  
Country Buffet, Citadel Crossing  
Shopping Center.

We will meet at noontime in the  
Party Room.

We decided to have a gift  
exchange. If you want to be  
included in the exchange bring a  
gift (value around \$3.00)...mark  
it for OM or YL. Be sure to  
include your name with the gift  
when you wrap it so that the  
recipient can thank you.

We have fun at our get togethers  
and every one is cordially invited.  
We'll be looking forward to  
seeing YOU there.

If you have a question (no theory  
questions pse!) my phone #471-  
9965.

73  
WAØMNL,Rosie

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## President's Corner

Thanks to all of you that made it to the November meeting. We had a really good turnout, a really good program (thanks to Jeff and Mike) and couple of new wrinkles to try out. The HF station worked (thanks to Dave), but not quite as well as we had hoped. We'll try it again in January. For those of you who brought QSL cards but didn't see the board for our QSL contest, bring 'em again in January. We'll have a place for your cards and figure out what states are missing from the board. Remember, when we fill the board, participants will get a nice certificate to use as wallpaper for their shack!

The principal at Irving Middle School is interested in getting an amateur radio program started at the school and by the time you read this, a small group of volunteers will have met to generate a plan for introducing the school to amateur radio. If you have any talents that can help in this effort (good with kids, teaching ability, willing to mentor kids or teachers), let me know. I'm sure that we will need more help.

Right now, I don't know how much we can do for the school. If we can get a program started at the schools, I don't know where it will end, but the possibilities are interesting. We could use some new young blood in our ranks and I believe such a program would also be a

benefit to the school and our community. Why do I feel that this would be a good thing? Getting my Novice ticket when I was 12 years old might have something to do with it. I'm sure it helped me get through school with a little more self-confidence.

Someone suggested that I should write a holiday column this month, but I'm not real good at writing warm fuzzies. Heck, I'm not that good at writing at all! Anyway, I hope you all had a good Thanksgiving. I did, thanks to a few friends. Now it's time to look forward to the next major holiday, Christmas - the time for giving rigs, accessories and other electronic gadgets! <beep> It's also a good time to help someone get on the air, tweak a new rig or build a QRP project. In other words, it's a good time to help someone. Whaddaya think? Merry Christmas and Happy New Year!

Greg Tarcza, WA2OOD

## General Membership Meeting November 12, 1997

Meeting was called to order by President WA2OOD at 19:03. Mike McDaniels, Pikes Peak Marathon presented a plaque of appreciation to Luci NØUD for the club's participation. Ginger NØUDO reported on the Elmer Net. It is on Mondays at 19:30 on 146.37/97 repeater, she showed a 70cm and a 2mtr.

Emergency antennas that was discussed on previous net. Minutes were approved as printed in Øbeat.

### Committee Reports

Asset: Mike KØTER nothing to report.

Public Service: Mike KØTER will try to coordinate Public Service events with ARES in future.

CCARC: Ron NKØP nothing to report.

Historian: Jody NØROZ still working on getting history of club gathered up.

Interference: Bill NØNJX nothing to report.

Publicity: Ron NKØP needs help with news media and internet.

Swapfest: Carlos KBØREI, swapfest will be May 2, 1997 from 8am to 3pm at Doherty High School, 4515 Barnes Rd. Colorado Springs Co. 80917. Prizes:

Alinco DR605T  
KH600 H.F. multi band antenna  
Gift certificate for \$200.00 from Comp USA  
Cash of \$100.00.  
He needs help setting up and various other jobs.

Technical Instructions: Rob N7LV for Linda KBØRKW code classes in 3rd week 5 to 6 in attendance, building code oscillators, for info contact her

on 145.345, 146.88, 146.79,  
448.45

VE Testing: see Nov Ø-BEAT  
Ø-BEAT: Bill KDØJU Need  
articles, dead line 20th of month

Activity: Renay KAØROY for  
reservations contact her.

#### Old Business:

Rob N7LV played a tape of  
phone conversation with Marshal  
Quiat on the removing the word  
exclusive out of our articles of  
incorporation that it was needed.  
Motion was made by Dennis  
KBØSXC to put word exclusive  
back in articles, motion seconded  
by Ron NKØP, a discussion was  
held on subject and after  
discussion motion was voted on.  
It passed.

Break was called by President  
WA2OOD till 20.05.

Meeting called to order at 20.10  
Hammy was awarded by Dave  
KBØYSN to Jeff NØJLH

Board meeting will be Monday  
Nov 17 at QTH of President  
WA2OOD at 19.00

Greg reported that Irving Middle  
School needed help to set up  
radio station and work with  
students Rob N7LV needs help  
setting up antennas at school  
Nov 11 as it is a non school day  
this for upcoming SAREX  
operation. Prior to meeting Dave  
NØUVR set up a demonstration  
of HF operation. The program  
tonight was demonstration and  
operating packet radio by Jeff  
NØWPA and Mike KØTER.  
Meeting adjourned at 21.15

submitted by Al NØCMW  
Secretary

## BOARD MEETING NOV 17, 1997

Meeting was held at QTH of  
President WA2OOD, present  
Greg WA2OOD, Les KCØNC,  
Al NØCMW, Rob N7LV Bill  
KDØJU, Bill NØNJX, Ron  
NKØP, Aaron KD6FLM,  
Renay KAØROY, Jody  
KAØROZ, Moe WBØRTF, Jeff  
NØJLF

Things brought up, Rob swapfest  
raffle license filed. On application  
for 501c, names that were on  
original articles of incorporation  
have to stay on new one. Ron  
our web page needs updating as  
to who our present officers  
are, Jeff will take care of that. Al  
bring officer and directors up to  
date in Ø-BEAT up-to-date, Bill  
KDØJU will do so. Les on  
programs Jan. will be  
home-brew, some future  
programs was discussed. NOTE  
NO DEC. MEETING. It will be  
held in conjunction with  
Christmas Party Saturday Dec.  
13, 1997 at Colorado Opry &  
Music Hall, contact Renay for  
tickets 641-1837 or Jody  
634-3995. Les has the QSL  
board and will bring it to meeting  
in January.

Hammy award for year will be  
presented in January meeting.  
Greg is still working with Irving  
Middle School on setting up  
radio projects with them. Al  
made a motion to give Mt  
Calvary Lutheran Church \$50.00  
a quarter seconded by Jeff after

discussion motion was passed  
Treasurer will do so.

Jeff is still waiting on police  
report on stolen generator, but  
will look into getting it so can go  
to stolen properties and look for  
our generator.

Next board meeting will be at  
QTH of Les KCØNC.

Submitted by Al NØCMW  
Secretary

## Treasurer's Report for period ending 10/31/97

General Fund Activity  
(Income - Expenses = Net)  
80.82 - 55.74 = 25.08

Please contact me for a more  
detailed report.

501(c)(3): The paperwork is  
complete on the amendments to  
the Articles of Incorporation, and  
a copy is winging its way to the  
Secretary of State. I've also  
forwarded to Jeff Boyes NØJLH  
a copy of what the Articles of  
Incorporation would look like if  
the amendments were written  
into the Articles, and that should  
be posted to the web site by now.  
Now I'm beginning the work on  
the 501(c)(3) application form,  
which should take a little bit of  
time.

Raffle: The raffle license was  
received on the last Monday in  
November, (lic # 98-0386) so we  
are now able to get the tickets  
printed. Once we have tickets  
AND prizes in hand, we can  
begin selling tickets. It's been the

swapfest committee's goal to begin selling tickets as early as the Christmas party.

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### Mir/Prairie Hills School Contact Back on Track? by N7LV

Hopefully, but I'll not hold my breath. Frank Bauer, VP at AMSAT for Manned Space Flight, called me Nov 2 to inform me that they're getting geared up again to schedule some schools to speak to the astronauts on Mir. This is a replay of the exercise we had back in Feb thru about May of this year, only I hope there aren't any more problems on Mir for a while.

Prairie Hills Elementary is the school on the club's application, originally submitted in 1994 to the ARRL, and if all goes well, the students there will have spoken to astronaut David Wolf before they break for Christmas. So, we've been trying to get things reassembled for the contact. And, as before, we can use all the help we can get.

Fortunately, many have helped so far. Dave Kurth NØUVR and an unknown assistant at HP have picked up completing the manual that Marilyn French (Roger French KBØRLF's XYL) began, but couldn't finish as she's been away for a while; John Conner WDØFHG has loaned two antennas, a transceiver and a rotor; numerous people have helped to reinstall the equipment (Mallory NØIKF, Steve

NØMHQ, Dennis KBØSXC, Austin W6RML have been a big help); Karen Garbee N1FED is laying out a sweatshirt design and Bdale N3EUA is assisting there; Richard Fredricy KBØLWJ is going to tackle coordinating the practice sessions at PHE (and can always use volunteers to assist); and Ron NKØP is coordinating the publicity. We can always use more help with the practice sessions, station assembly, checkout and operation, and with recording this event thru photos and videos. Also, PPFMA will support by allowing us to retransmit the audio via the PPFMA system, so we need a volunteer to coordinate that effort. I've probably overlooked a few people in this short article, but we'll list all that have helped in the final write-up on this event.

Any and all amateurs are invited to help with this club-sponsored event. Please drop me a line if you think you have something to contribute. Even if you don't think you can contribute, we can still find some way for you to participate. Or, if you'd just rather watch the events develop, that's fine too. We can use all the support, moral and otherwise, we can get.

Since the Ø-Beat is a monthly newsletter, it can't begin to be used as a primary source of information. So I've been using e-mail and the on-the-air nets to get the word out. I also have put an answering machine on a dedicated phone line to

provide a 24-hr message giving the current status. That number is 719-282-0108. And there'll be a link from the PPRAA web page (<http://www.qsl.net/ppraa/>) to a web page that'll have the latest and greatest information. Please use those resources to find out information or to leave us messages. Thanks.

73/Rob

---

Rosie, WAØMNL

It was suggested that I write a new poem this Christmas...any reference to persons living or dead is intentional.

Xmas at our QTH...

Twas Xmas eve at 616 North  
Thirty First. Granny and Gramps  
had a heck of a thirst.

They opened up a six pack of  
soda pop. They drank it all  
before they could stop.

Full to the brim they waddled off  
to their beds, While visions of  
"goodies" danced in their head.

When morning came there were  
presents galore. Santa had left  
radios, antennas and much more.

Gramps got some socks and a  
new 2 meter rig. Granny got a  
keyer and a new blond wig.

When granny saw all the radios  
and stuff, She said, "My ! Santa  
has been good to us."

---

She told Gramps, "I wish I'd been nicer to you And not hollered at you like I always do."

Granny grabbed her keyer and got on the air. Soon she heard some rare DX away out there.

When out on the bands there arose such a clatter, She sprang from the shack to see what was the matter.

All through the house she flew like a flash, To find the reason for the loud QRM crash.

Granny found the reason for all that noise on the band, It came from the bathroom and was caused by her old man.

He was running his razor as he shaved his chin. He wanted Granny to take a little notice of him.

She yelled, "I love you dearly even if you are old and slow, But if you don't quit that racket you will have to go."

We all have our priorities!

73, WAØMNL, Rosie.

Oh! No not another poem from Rosie!!...Just a story...sad but true.....

Farmer Jones and his wife lived on a 10 acre farm and on this farm they had alot of animals... dogs, cats, cows, horses,

chickens and even a snake. BUT not one turkey did they have.

Early one spring day Farmer Jones went to town and brought back a turkey egg. He thought it would be great to raise a turkey for their Thanksgiving day dinner. Mrs. Jones liked the idea.

The egg hatched and so this farm had a turkey. Because it was the only turkey chick it got a lot of tender care. It even slept on the front porch in a box that Farmer Jones had fixed for it. He even put one of his flannel shirts in the box. That turkey was a happy big bird, it followed Farmer Jones around the farm. Mrs. Jones would let it come into the kitchen and she would feed it some of the table scraps. They named the turkey... Tommy Turkey.

Tommy Turkey ate and ate and grew and grew. The Jones talked about what a fine meal Tommy would make on Thanksgiving.

The day before Thanksgiving was the day they planned to butcher Tommy. Mrs. Jones put some water ,to heat, on the old cook stove. Farmer Jones went out to butcher Tommy. He didn't have any trouble catching Tommy and he carried that turkey to the old stump. Farmer Jones had

sharpened his old ax and he had it with him. Farmer Jones told Tommy "This is going to hurt me more then it'll hurt you but we have to have you for dinner." Well, he laid Tommy Turk on that old stump, Tommy looked up at Farmer Jones with his little beady eyes and gave a soft gobble as if he understood.

The next day the Jones's sat down for their Thanksgiving dinner. There was sweet potatoes , cranberry sauce, and pumpkin pie. Tommy Turkey had a place of honor at the table. He sat in one of the kids old high chairs, a bib around his neck...  
**EATING PIZZA WITH THE JONES'S.....**

Happy turkey day... from Russ and Rosie.

---

If you sell any item, please email or call the editor to add to or discontinue your ad. All ads will be discontinued after two issues unless notified otherwise or if space needed for other reasons.

Thanks,  
Editor



Dits and Bits

- FT 101B transceiver
- FV101ext VFO

- SP 101PB/Speaker/phone Patch
  - FC-1 Freq. Counter
  - D 104 Mike
  - Memorex Power Center  
As a Package, all for \$475  
obo.
- Thanks, George WBØDUM  
@ 719 495 3983 or  
ghlock@pcisys.net
- 

For Sale: Wilderness Sierra  
in very good condition with  
KC-2 installed.

Includes 40 and 20 meter  
modules. Works perfectly,  
has 5 watt mod, actually  
gets about 4 watts. Has  
ABX which provides great  
selectivity adjustment.  
Otherwise unmodified. This  
Sierra is surplus, have  
another one, really don't  
need 2. Complete  
documentation on Sierra and  
KC-2 included. In kit form,  
current cost is \$365 +  
shipping.

\$425 firm shipped

Alan, N3BJ

Editor's Note: There was  
no phone number with this.  
So if you need to contact  
Alan, it will have to be radio!

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For Sale:

- Heathkit SB-220 Linear Amp  
80 - 10 meters \$500
  - Heathkit Hybrid Phone Patch  
Model HD-15 \$20
  - Heathkit "Antenna" Dummy  
Load Model HN-31 \$10
  - Heathkit FM Stereo Tuner  
Model AJ-13 \$20
  - Heathkit Stereo Amp  
Model AA-32 \$20
  - Hallicrafters Xcvt  
Model HT-40 \$20
  - Hallicrafters Rcvr  
Model 8R-40 \$20
- Contact Russ, WØSW at  
633-8186

(Russ That disk you mailed  
was unformatted!!! Lucky  
you included the printed  
version and lucky my brother  
headed back to Ft Collins  
early or I would not have had  
the time to type this in! In  
the future please check your  
disk BEFORE you mail it!!!  
Thanks, ED.)

-----

For Sale:  
Portable Antenna base..  
KBØFNM, Russ...471-9965

For Sale:

- Kenwood TS-830 & MC-50  
mike \$500.
- Ameritron AL-811 Amplifier  
\$450.
- MFJ-202B RF Noise Bridge  
\$35.
- MFJ-949B Versa Tuner II  
\$60

- Heathkit HD-1410 Electronic  
Keyer \$15.
- Digital VT-220 Terminal  
\$20.
- Lear Seigler ADM-3A Dumb  
terminal \$5.

Contact: E.J. ,KDØNB, at  
495-9007.

### THE CHRISTMAS SONG FOR HAMS BY KØØJ AND NØTVQ DECEMBER 1993

Kenwood roasting on an open  
fire. Yaesu nipping at your nose  
Yuletide Icoms tuning a wire  
and folks dressed up with Alinco.  
Everybody knows a Heathkit and  
some misletoe helps to make the  
season bright.

Collins rigs with their tubes all  
aglow will find it nice to talk to  
Knight.

They know that Santec's on his  
way. He's loaded lots of rigs and  
feedline on his sleigh.

And every mothers child is gonna  
spy to see if old swans really  
know how to fry.  
And so I'm offering this simple  
phrase to hams from one to  
ninety two.

Although it's been said many  
times many ways Merry  
Christmas to you!



---

## From the Editor

I would like to thank the following people for articles and sales items submitted: President Greg, WA2OOD; Rob, N7LV; Al, N0CMW; OJ, K00J; Rosie, WA0MNL; Russ, KB0FNM; George, WB0DUM; Alan, N3BJ; Bob, N0RNQ and N0TVQ. Hope I didn't miss anyone!

I would also like to thank John, N0QJS for taking the extra Ø-beats and distributing them to the local electronics stores. (Sorry I missed that last month, John! I couldn't think of your name or call!)

I would also like to apologize to Jeff for leaving out of the Board member lineup!

---

### REMOTE CONTROLLED POWER SWITCH

by Robert A. Nyman, N0RNQ

How many operators have wanted to have a power system for their "shack" which allows the almost instantaneous transfer between battery power or a commercial power source? Using two relays, one solid state, the other a 30A automotive type, three terminal blocks, two hefty diodes (60A), two small resistors, a single 120vac outlet, an input cord and large and small gauge wire, two small "start" batteries and four switches, I

devised a power selector system which allows the operator to select between an AC power supply or a battery from the panel location or the "shack".

I worked out the design for this system on paper and started to assemble the project. I found a metal panel and tried it for size by placing the parts loosely on the panel. I needed to place the solid state relay and 30A automotive relay, a single outlet fixture, a triple fuse block (two positions used), and three terminal blocks, two large and one small.

The AC power supply input is controlled by a solid state relay. The relay acts as a remote control switch and applies power to the power supply which has its own power switch already in the "on" position. The DC out from the power supply enters the panel through a 30A fuse and loops over to one of two 60A diodes, at which point the outputs are combined together and fed out to the "shack". The battery power enters through a second 30A fuse, through the second solid state relay, then to the second diode and out to the "shack". When operated normally from either location, the design does not permit both relays to be energized at the same time, but as I found out through normal use, both systems may end up being "on line" if one selector switch is inadvertently left in either "on" position.

The system operates as follows: either relay can be selected by the single pole, double throw, center "off" switch. The switch is positioned either to the left or right selecting either the power supply or battery power source. Momentarily pushing the "start" button puts a 9 volt battery "on line" long enough to power the system and energize the selected relay. The large diodes act as check valves to prevent the DC voltage from feeding back through the system. The two small resistors ensure that the diodes do not "leak" current backwards. There are two LEDs on each control panel giving the operator a "power on" indicator. The switch panels are wired identically and the same LED position lights up on both panels.

Once the system is started, it keeps itself going (sealed) by using "shack" input current to feed back through the selector switch to the relay keeping it powered. The solid state relay only requires 3-32 VDC @ 20mA, and the automotive relay needs about 6VDC @ 160Ma to energize. I have found out through use, that the system will not start the battery source with "loads" applied. The system will start the AC power supply because the solid state relay needs less power to energize. There is also an inherent safety feature - the relays will not restart if the power goes off with the loads on. The system voltage drops very quickly,

pulling "restart" voltage off the system.

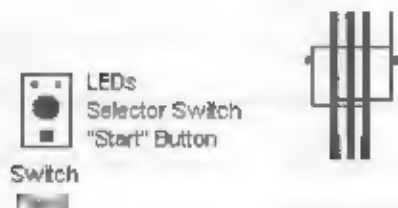
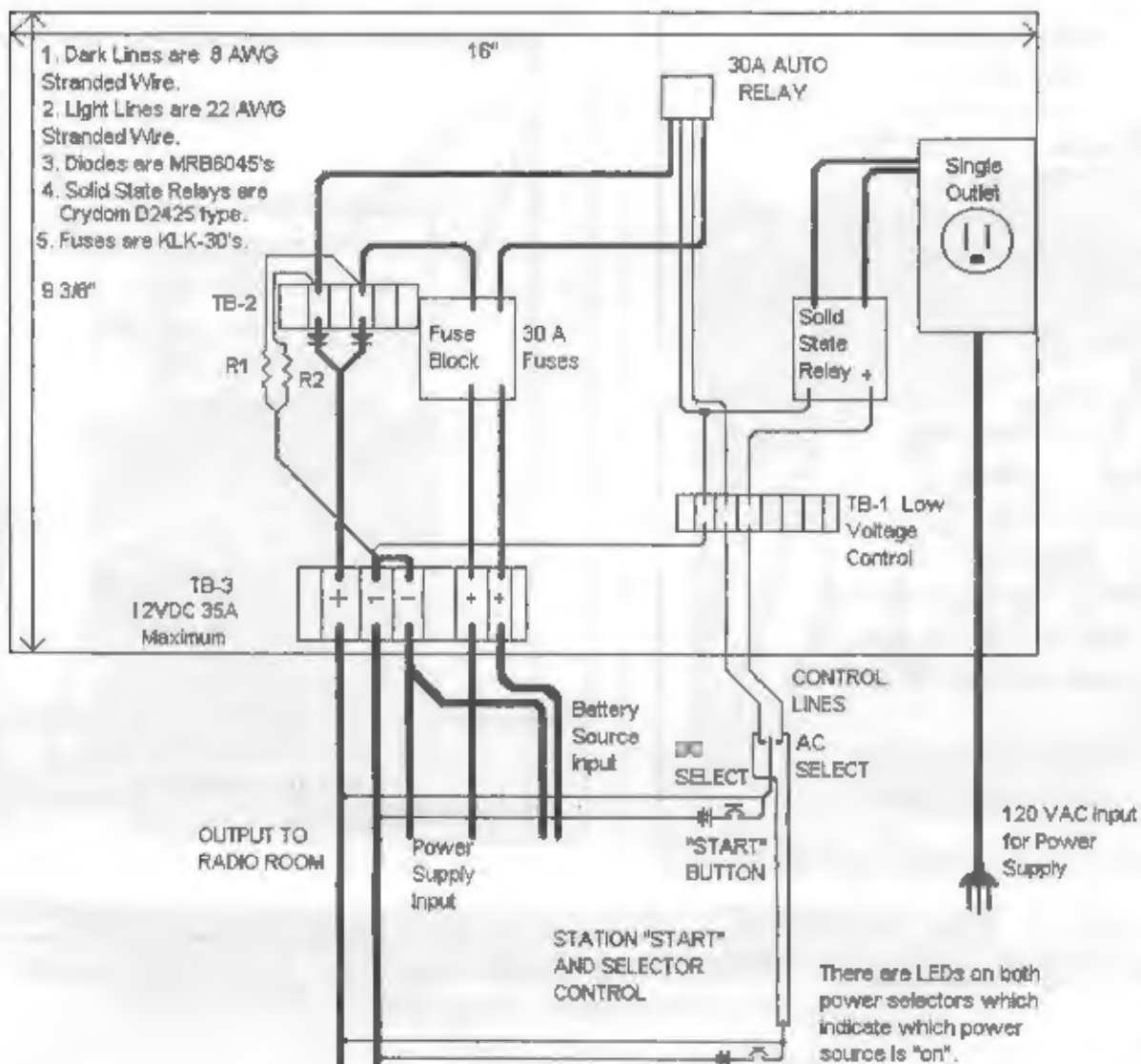
The large gauge wiring on the panel and the runs to the "shack" are 8 AWG. I used two different colored wires to facilitate polarity identification white for

the hot or positive and black for ground or negative. I assembled a plastic outlet box with a 6 position Molex connector and two bolts on the side of the box which serve as the main power connector terminals in the "shack". The Molex connector is

where the selector lines are located and while using only two wires all 6 positions are wired and run back to TB-1 on the power panel. I closed this box with a metal cover.

## PARTS LIST

| Qty | Component                                                            | Source                                                  |
|-----|----------------------------------------------------------------------|---------------------------------------------------------|
| 1   | Metal Panel                                                          | 10" x 16" was a good size with little space wasted      |
| 1   | Solid State relay                                                    | CRYDOM D2524 240VAC 25AMP or suitable 110VAC equivalent |
| 1   | 30A automotive relay                                                 | RS 275-226 or any automotive store equivalent           |
| 2   | 60A diodes                                                           | OEM                                                     |
| 2   | 4 - 8 position terminal blocks                                       | Graybar Electric or equivalent                          |
| 1   | Small terminal block                                                 | RS 274-659                                              |
| 2   | Single pole double throw switches                                    | RS 275-654                                              |
| 2   | Switch Panel (Calterm 40610)                                         | Pep Boys Auto                                           |
| 4   | T-1 LEDs                                                             | RS 276-026                                              |
| 6   | 1K resistors                                                         | RS 271-1321                                             |
| 2   | 9Volt batteries                                                      | Anywhere                                                |
| 2   | 9volt battery connectors                                             | RS 275-324 or 275-325                                   |
| 1   | Fuse block, 2 positions minimum                                      | Graybar Electric or equivalent                          |
| 2   | 30 Amp fuses, KLK-30                                                 | Graybar Electric or equivalent                          |
| 1   | Electric power cord                                                  | RS 278-1258 or equivalent                               |
| 1   | Enclosed electrical box                                              | Home Base or Electric supplier                          |
|     | 100Ft 8AWG Stranded Wire                                             | Home Base or Electric supplier                          |
|     | 50Ft length of white insulation                                      |                                                         |
|     | 50Ft length of black insulation                                      |                                                         |
|     | Misc.                                                                |                                                         |
|     | Small gauge wire, 22AWG                                              |                                                         |
|     | Terminal lugs, for 8AWG wire                                         |                                                         |
|     | 2                                                                    | Push on                                                 |
|     | 14                                                                   | Loop terminals                                          |
|     | Mounting screws for terminal blocks, relays and panel when completed |                                                         |
|     | Metal panel                                                          |                                                         |



Wiring schematic for selector switch.  
 Large lines are selector wires for power supply or battery, small lines are wires for the LEDs and ground.

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